

Dynamic Demand for New and Used Durable Goods without Physical Depreciation: the case of Japanese Video Games

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Quick Summary

- Examine the interaction between new and used video game market in Japan (2004-08)
- Given that product depreciates negligibly, used market may have two effects:
 - Substitution effect: buy used instead of new
 - Resale effect: if consumers forward-looking, the existence of a used market means resale opportunities exist, hence buy more new games

Quick Summary

- Data: weekly sales of 20 video games, prices & quantities of new and used + resale value of used & inventory level of used copies
- Estimation Methodology: new structural framework (Bayesian MCMC for a non-stationary environment) that incorporates:
 - Buying decisions of new and used
 - Consumer expectations of future prices
 - Depreciation of owners' and buyers' consumption values (satiation vs. freshness)

Quick Summary

Figure 1: Average quantities demanded for new video games

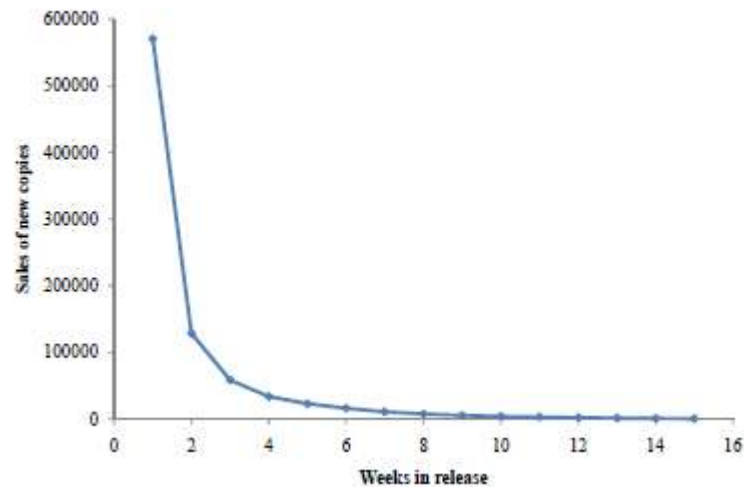


Figure 2: Average quantities demanded and supplied and inventory level for used video games

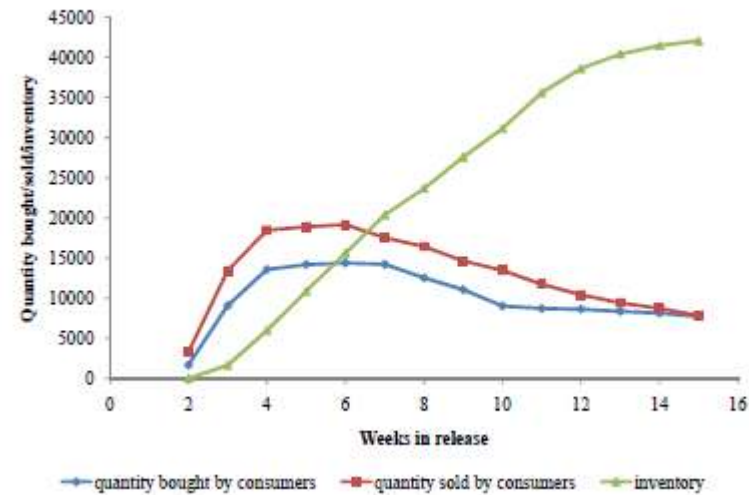
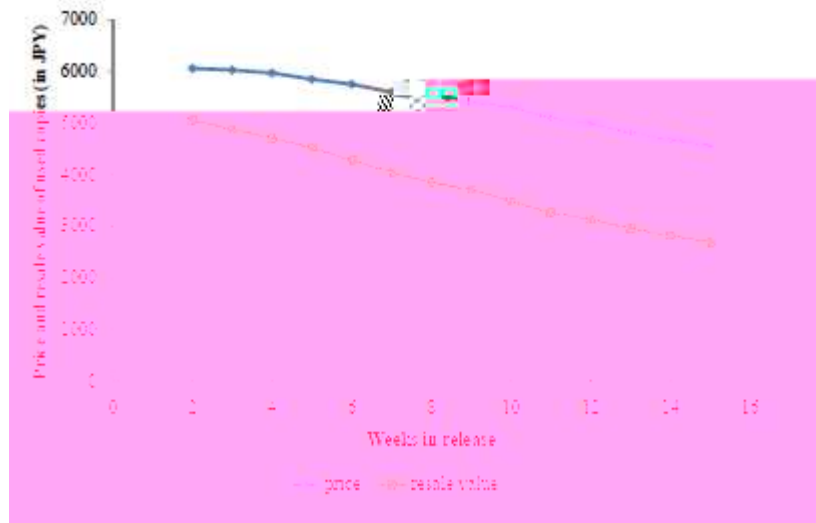


Figure 3: Average price and resale value of used video games



Quick Summary

Results:

- Two important segment of consumers:
 - Type-1 willing to buy a used copy and do not bother to sell at all
 - Type-2 buy new copies and consider selling
- Small substitutability between new and used that declines over time
- Shutting down the used market reduces firms' profits (if do not re-optimize prices), but increases profits if they do re-optimize.

Comments

Interesting research question

+ new data

+ new estimation methodology

+ well written paper

= EXCELLENT paper overall!!

Comments

Perhaps some points to consider:

- Counterfactual exercise:
 - data only on 20 games
 - Why only profits? Consumer welfare?
 - Would be v. interesting to examine own games vs. rest, alternative institutional arrangement (what if Sony controlled the second hand market)
 - no used market might affect the timing of releases
 - Impact of second-hand market on diffusion of hardware

Comments

- On price coef. Identification: IVs are the inventory level of used games at the beginning and the cumulative number of newly introduced games.
 - First stage results?
 - “hit” games?
- Satiation rate: observed product characteristics
 - Firm creator dummies; console firm games vs rest
 - Game category games (action, sports, etc)

Comments

- Discount factor identification: resale value doesn't enter buying decision, but that contradicts resale effect intuition